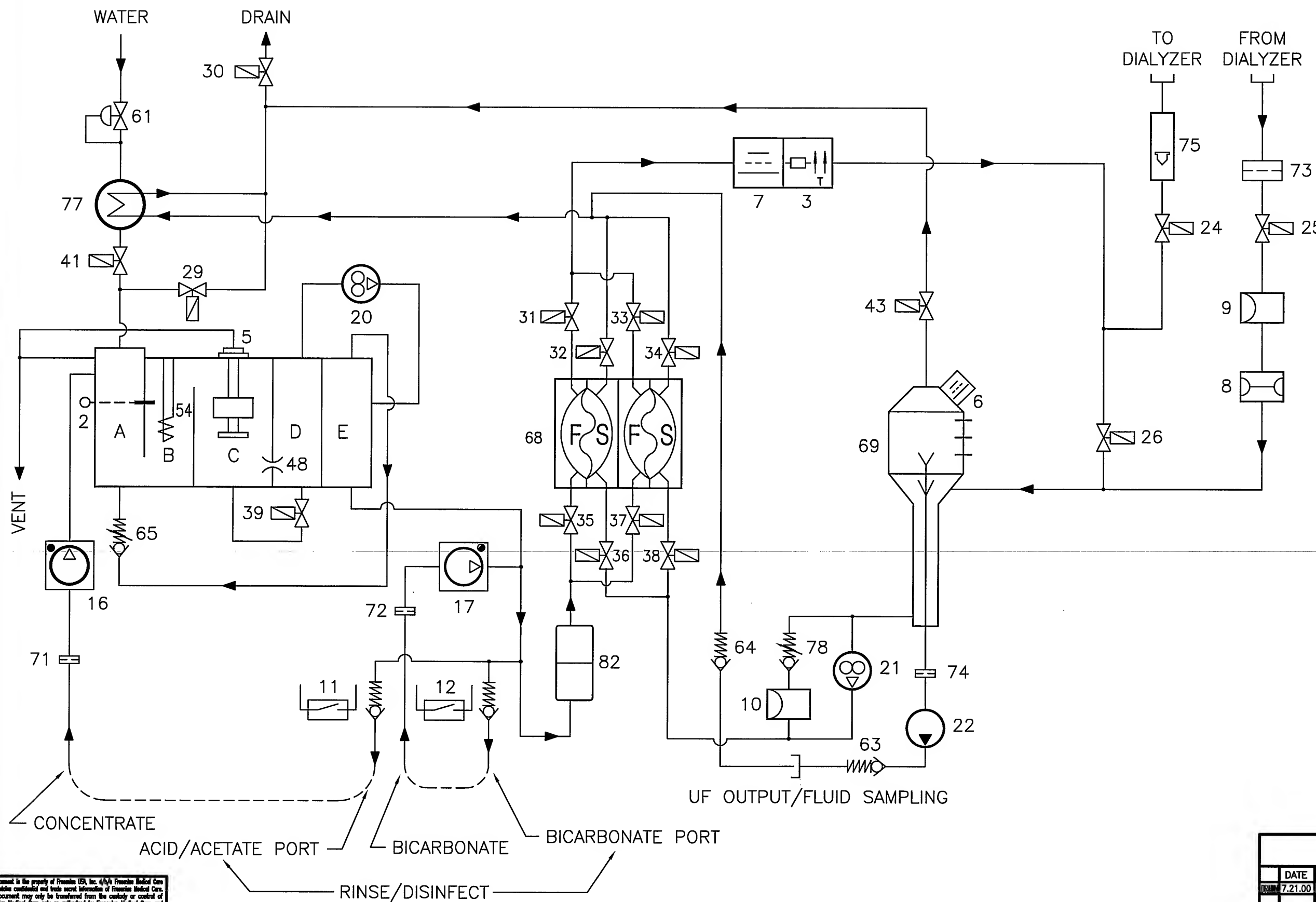


HYDRAULICS: FRESENIUS 2008K

REV	ECO #	BY	DATE	CHK	REVISION
A	7222	BH	7.21.00	JEF	RELEASE
B	7655	RR	10.11.01	JEF	ADD 3 OTHER HYDRAULIC CONFIGURATIONS
C	12092	RR	9.25.03	JEF	ADD 2 UNSAFE PLUS HYDRAULIC CONFIGURATIONS
D	21053	BH	7.11.07	JEF	CORRECTED FLOW FOR TEST VALVE 28



COMPONENT LIST FOR FLOW DIAGRAM 2008K

2. TEMPERATURE CONTROL THERMISTOR
3. TEMPERATURE MONITOR THERMISTOR
5. FLOAT SWITCH
6. AIR SENSOR IN AIR SEPARATOR CHAMBER.
7. CONDUCTIVITY CELL
8. BLOOD LEAK DETECTOR
9. DIALYSATE PRESSURE TRANSDUCER
10. CHAMBER FULL SWITCH
11. REED SWITCH CONCENTRATE WAND
12. REED SWITCH BICARBONATE WAND
16. CONCENTRATE PUMP
17. BICARBONATE PUMP
20. DEAERATION PUMP
21. FLOW PUMP
22. UF PUMP
24. DIALYZER VALVE 1
25. DIALYZER VALVE 2
26. BYPASS VALVE
29. RECIRCULATION VALVE
30. DRAIN VALVE
31. BALANCE CHAMBER VALVE
32. BALANCE CHAMBER VALVE
33. BALANCE CHAMBER VALVE
34. BALANCE CHAMBER VALVE
35. BALANCE CHAMBER VALVE
36. BALANCE CHAMBER VALVE
37. BALANCE CHAMBER VALVE
38. BALANCE CHAMBER VALVE
39. BYPASS VALVE FOR DEAERATION ORIFICE
41. WATER INLET VALVE
43. VENT VALVE FOR AIR SEPARATION CHAMBER
48. DEAERATION ORIFICE
54. HEATER
61. WATER INLET PRESSURE REGULATOR
63. CHECK VALVE FROM UF PUMP TO SAMPLE PORT
64. CHECK VALVE FROM SAMPLE PORT TO DRAIN
65. LOADING PRESSURE VALVE
69. AIR SEPARATION CHAMBER
71. ACID/ACETATE FILTER
72. BICARBONATE FILTER
73. FROM DIALYZER LINE FILTER
74. UF PUMP FILTER
75. DIALYSATE LINE FLOW INDICATOR
77. HEAT EXCHANGER
78. FLOW PUMP PRESSURE RELIEF VALVE
82. MIXING CHAMBER

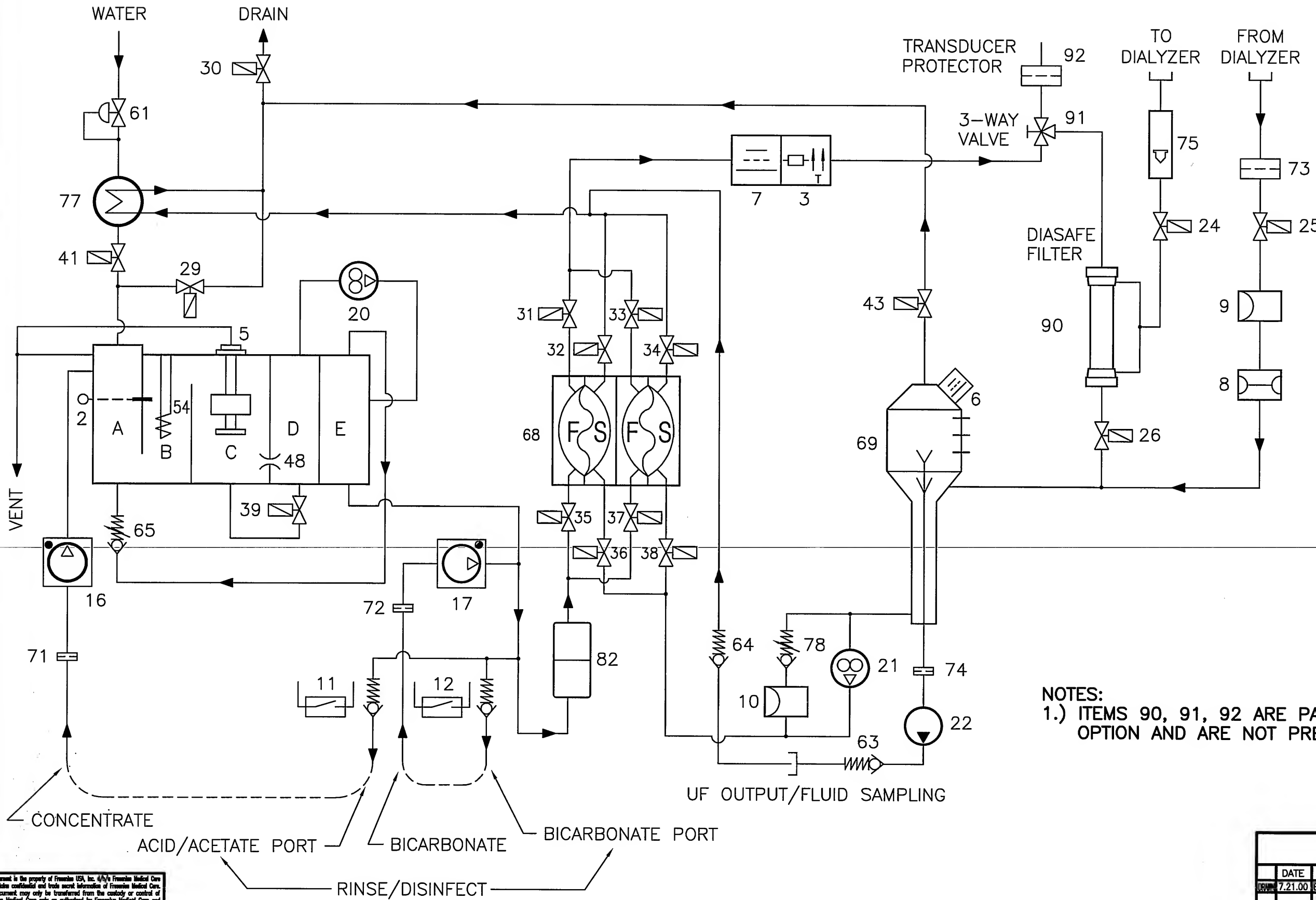
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DATE		NAME		MATERIAL	
7.21.00		B.	HOLMQUIST	2008K HYDRAULIC FLOW DIAGRAM	
				700072	
				FRESENIUS	
				DWC_700072_2008K HYDRAULIC FLOW DIAGRAMS	
				SCALE	NONE
				REV. D	SHEET
				1 OF 6	

HYDRAULICS: FRESENIUS 2008K WITH DIASAFE FILTER

REV	ECO #	BY	DATE	CHK	REVISION
A	7222	BH	7.21.00	JEF	RELEASE
B	7655	RR	10.11.01	JEF	ADD 3 OTHER HYDRAULIC CONFIGURATIONS
C	12092	RR	9.25.03	JEF	ADD 2 DIASAFE PLUS HYDRAULIC CONFIGURATIONS
D	21053	BH	7.11.07	JEF	CORRECTED FLOW FOR TEST VALVE 28



COMPONENT LIST FOR FLOW DIAGRAM 2008K

2. TEMPERATURE CONTROL THERMISTOR
3. TEMPERATURE MONITOR THERMISTOR
5. FLOAT SWITCH
6. AIR SENSOR IN AIR SEPARATOR CHAMBER.
7. CONDUCTIVITY CELL
8. BLOOD LEAK DETECTOR
9. DIALYSATE PRESSURE TRANSDUCER
10. CHAMBER FULL SWITCH
11. REED SWITCH CONCENTRATE WAND
12. REED SWITCH BICARBONATE WAND
16. CONCENTRATE PUMP
17. BICARBONATE PUMP
20. DEAERATION PUMP
21. FLOW PUMP
22. UF PUMP
24. DIALYZER VALVE 1
25. DIALYZER VALVE 2
26. BYPASS VALVE
29. RECIRCULATION VALVE
30. DRAIN VALVE
31. BALANCE CHAMBER VALVE
32. BALANCE CHAMBER VALVE
33. BALANCE CHAMBER VALVE
34. BALANCE CHAMBER VALVE
35. BALANCE CHAMBER VALVE
36. BALANCE CHAMBER VALVE
37. BALANCE CHAMBER VALVE
38. BALANCE CHAMBER VALVE
39. BYPASS VALVE FOR DEAERATION ORIFICE
41. WATER INLET VALVE
43. VENT VALVE FOR AIR SEPARATION CHAMBER
48. DEAERATION ORIFICE
54. HEATER
61. WATER INLET PRESSURE REGULATOR
63. CHECK VALVE FROM UF PUMP TO SAMPLE PORT
64. CHECK VALVE FROM SAMPLE PORT TO DRAIN
65. LOADING PRESSURE VALVE
69. AIR SEPARATION CHAMBER
71. ACID/ACETATE FILTER
72. BICARBONATE FILTER
73. FROM DIALYZER LINE FILTER
74. UF PUMP FILTER
75. DIALYSATE LINE FLOW INDICATOR
77. HEAT EXCHANGER
78. FLOW PUMP PRESSURE RELIEF VALVE
82. MIXING CHAMBER
90. DIASAFE FILTER
91. 3-WAY VALVE
92. TRANSDUCER PROTECTOR

NOTES:

- 1.) ITEMS 90, 91, 92 ARE PART OF THE DIASAFE FILTER OPTION AND ARE NOT PRESENT ON ALL MACHINES.

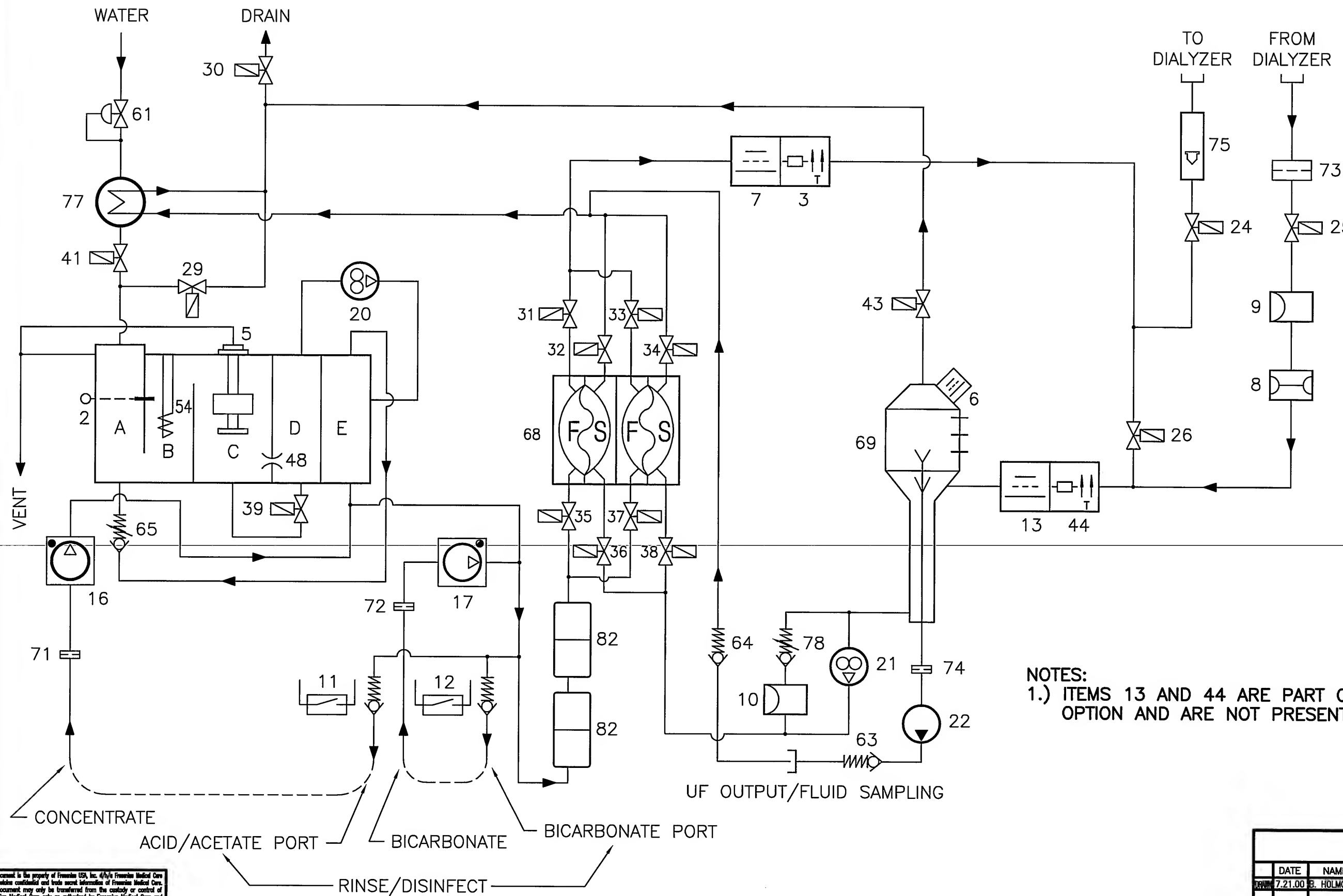
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DATE		NAME		MATERIAL	
7.21.00	B. HOLMQUIST			2008K HYDRAULIC FLOW DIAGRAM	
				700072	
				DWG_700072 2008K HYDRAULIC FLOW DIAGRAMS	
				SCALE NONE	
				REV. D SHEET 2 OF 6	

HYDRAULICS: FRESENIUS 2008K WITH ONLINE CLEARANCE

REV	ECO #	BY	DATE	CHK	REVISION
A	7222	BH	7.21.00	JEF	RELEASE
B	7655	RR	10.11.01	JEF	ADD 3 OTHER HYDRAULIC CONFIGURATIONS
C	12092	RR	9.25.03	JEF	ADD 2 DIALYSE PLUS HYDRAULIC CONFIGURATIONS
D	21053	BH	7.11.07	JEF	CORRECT FLOW FOR TEST VALVE 28



COMPONENT LIST FOR FLOW DIAGRAM 2008K

2. TEMPERATURE CONTROL THERMISTOR
3. TEMPERATURE MONITOR THERMISTOR
5. FLOAT SWITCH
6. AIR SENSOR IN AIR SEPARATOR CHAMBER.
7. CONDUCTIVITY CELL
8. BLOOD LEAK DETECTOR
9. DIALYSATE PRESSURE TRANSDUCER
10. CHAMBER FULL SWITCH
11. REED SWITCH CONCENTRATE WAND
12. REED SWITCH BICARBONATE WAND
13. POST CONDUCTIVITY CELL
16. CONCENTRATE PUMP
17. BICARBONATE PUMP
20. DEAERATION PUMP
21. FLOW PUMP
22. UF PUMP
24. DIALYZER VALVE 1
25. DIALYZER VALVE 2
26. BYPASS VALVE
29. RECIRCULATION VALVE
30. DRAIN VALVE
31. BALANCE CHAMBER VALVE
32. BALANCE CHAMBER VALVE
33. BALANCE CHAMBER VALVE
34. BALANCE CHAMBER VALVE
35. BALANCE CHAMBER VALVE
36. BALANCE CHAMBER VALVE
37. BALANCE CHAMBER VALVE
38. BALANCE CHAMBER VALVE
39. BYPASS VALVE FOR DEAERATION ORIFICE
41. WATER INLET VALVE
43. VENT VALVE FOR AIR SEPARATION CHAMBER
44. POST TEMPERATURE THERMISTOR
48. DEAERATION ORIFICE
54. HEATER
61. WATER INLET PRESSURE REGULATOR
63. CHECK VALVE FROM UF PUMP TO SAMPLE PORT
64. CHECK VALVE FROM SAMPLE PORT TO DRAIN
65. LOADING PRESSURE VALVE
69. AIR SEPARATION CHAMBER
71. ACID/ACETATE FILTER
72. BICARBONATE FILTER
73. FROM DIALYZER LINE FILTER
74. UF PUMP FILTER
75. DIALYSATE LINE FLOW INDICATOR
77. HEAT EXCHANGER
78. FLOW PUMP PRESSURE RELIEF VALVE
82. MIXING CHAMBER

NOTES:
 1.) ITEMS 13 AND 44 ARE PART OF THE ONLINE CLEARANCE OPTION AND ARE NOT PRESENT ON ALL MACHINES,

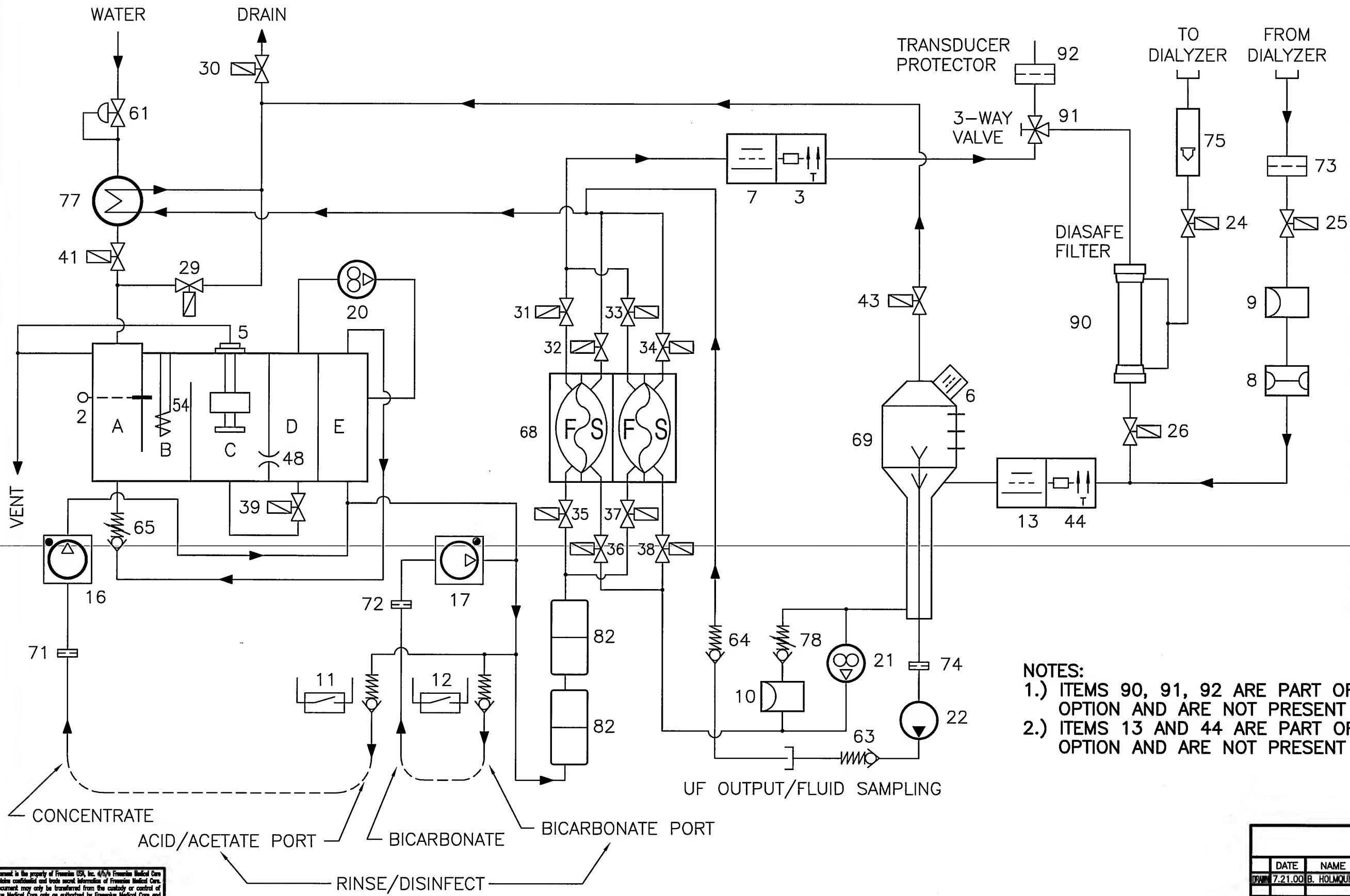
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DATE		NAME		MATERIAL	
7.21.00	B.	HOLMQUIST		2008K HYDRAULIC FLOW DIAGRAM	
FRESENIUS				700072	REV. D SHEET 3 OF 6
DWG_700072 2008K HYDRAULIC FLOW DIAGRAMS					

HYDRAULICS: FRESENIUS 2008K WITH DIASAFE FILTER AND ONLINE CLEARANCE

REV	ECO #	BY	DATE	CHK	REVISION
A	7222	BH	7.21.00	JEF	RELEASE
B	7655	RR	10.11.01	JEF	ADD 3 OTHER HYDRAULIC CONFIGURATIONS
C	12092	RR	9.25.03	JEF	ADD 2 DIASAFE PLUS HYDRAULIC CONFIGURATIONS
D	21053	BH	7.11.07	JEF	CORRECT FLOW FOR TEST VALVE 28



- COMPONENT LIST FOR FLOW DIAGRAM 2008K**
2. TEMPERATURE CONTROL THERMISTOR
 3. TEMPERATURE MONITOR THERMISTOR
 5. FLOAT SWITCH
 6. AIR SENSOR IN AIR SEPARATOR CHAMBER.
 7. CONDUCTIVITY CELL
 8. BLOOD LEAK DETECTOR
 9. DIALYSATE PRESSURE TRANSDUCER
 10. CHAMBER FULL SWITCH
 11. REED SWITCH CONCENTRATE WAND
 12. REED SWITCH BICARBONATE WAND
 13. POST CONDUCTIVITY CELL
 16. CONCENTRATE PUMP
 17. BICARBONATE PUMP
 20. DEAERATION PUMP
 21. FLOW PUMP
 22. UF PUMP
 24. DIALYZER VALVE 1
 25. DIALYZER VALVE 2
 26. BYPASS VALVE
 29. RECIRCULATION VALVE
 30. DRAIN VALVE
 31. BALANCE CHAMBER VALVE
 32. BALANCE CHAMBER VALVE
 33. BALANCE CHAMBER VALVE
 34. BALANCE CHAMBER VALVE
 35. BALANCE CHAMBER VALVE
 36. BALANCE CHAMBER VALVE
 37. BALANCE CHAMBER VALVE
 38. BALANCE CHAMBER VALVE
 39. BYPASS VALVE FOR DEAERATION ORIFICE
 41. WATER INLET VALVE
 43. VENT VALVE FOR AIR SEPARATION CHAMBER
 44. POST TEMPERATURE THERMISTOR
 48. DEAERATION ORIFICE
 54. HEATER
 61. WATER INLET PRESSURE REGULATOR
 63. CHECK VALVE FROM UF PUMP TO SAMPLE PORT
 64. CHECK VALVE FROM SAMPLE PORT TO DRAIN
 65. LOADING PRESSURE VALVE
 69. AIR SEPARATION CHAMBER
 71. ACID/ACETATE FILTER
 72. BICARBONATE FILTER
 73. FROM DIALYZER LINE FILTER
 74. UF-PUMP-FILTER
 75. DIALYSATE LINE FLOW INDICATOR
 77. HEAT EXCHANGER
 78. FLOW PUMP PRESSURE RELIEF VALVE
 82. MIXING CHAMBER
 90. DIASAFE FILTER
 91. 3-WAY VALVE
 92. TRANSDUCER PROTECTOR

- NOTES:**
- 1.) ITEMS 90, 91, 92 ARE PART OF THE DIASAFE FILTER OPTION AND ARE NOT PRESENT ON ALL MACHINES.
 - 2.) ITEMS 13 AND 44 ARE PART OF THE ONLINE CLEARANCE OPTION AND ARE NOT PRESENT ON ALL MACHINES,

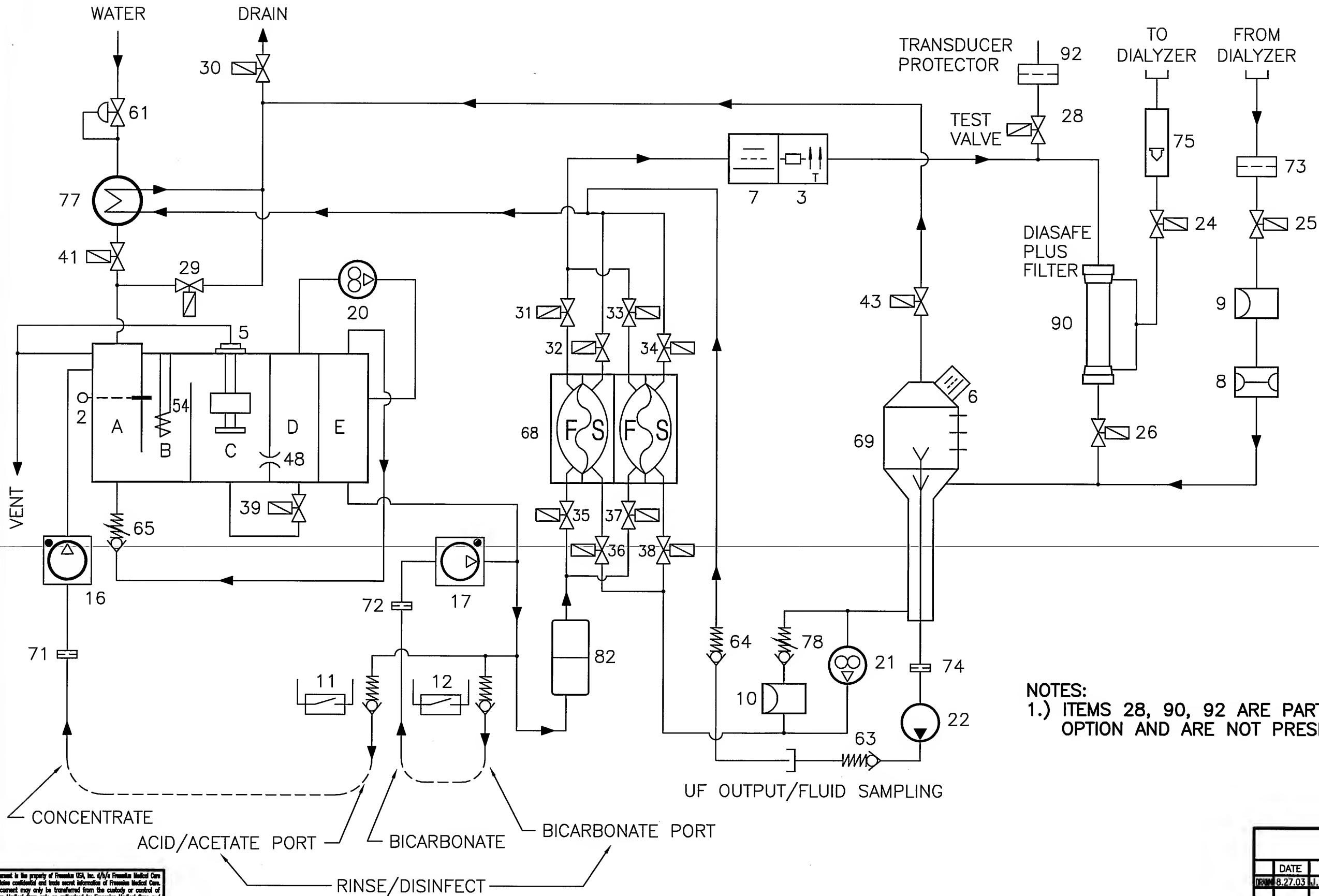
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DATE		NAME		MATERIAL	
7.21.00	B.	HOLMQUIST		2008K HYDRAULIC FLOW DIAGRAM	
				700072	
				SCALE NONE	
				REV. D SHEET 4 OF 6	

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HYDRAULICS: FRESENIUS 2008K WITH DIASAFE PLUS FILTER

REV	ECO #	BY	DATE	CHK	REVISION
C	12092	RR	9.25.03	JEF	ADD 2 DIASAFE PLUS HYDRAULIC CONFIGURATIONS
D	21053	BH	7.11.07	JEF	CORRECT FLOW FOR TEST VALVE 28



COMPONENT LIST FOR FLOW DIAGRAM 2008K

2. TEMPERATURE CONTROL THERMISTOR
3. TEMPERATURE MONITOR THERMISTOR
5. FLOAT SWITCH
6. AIR SENSOR IN AIR SEPARATOR CHAMBER.
7. CONDUCTIVITY CELL
8. BLOOD LEAK DETECTOR
9. DIALYSATE PRESSURE TRANSDUCER
10. CHAMBER FULL SWITCH
11. REED SWITCH CONCENTRATE WAND
12. REED SWITCH BICARBONATE WAND
16. CONCENTRATE PUMP
17. BICARBONATE PUMP
20. DEAERATION PUMP
21. FLOW PUMP
22. UF PUMP
24. DIALYZER VALVE 1
25. DIALYZER VALVE 2
26. BYPASS VALVE
28. TEST VALVE
29. RECIRCULATION VALVE
30. DRAIN VALVE
31. BALANCE CHAMBER VALVE
32. BALANCE CHAMBER VALVE
33. BALANCE CHAMBER VALVE
34. BALANCE CHAMBER VALVE
35. BALANCE CHAMBER VALVE
36. BALANCE CHAMBER VALVE
37. BALANCE CHAMBER VALVE
38. BALANCE CHAMBER VALVE
39. BYPASS VALVE FOR DEAERATION ORIFICE
41. WATER INLET VALVE
43. VENT VALVE FOR AIR SEPARATION CHAMBER
48. DEAERATION ORIFICE
54. HEATER
61. WATER INLET PRESSURE REGULATOR
63. CHECK VALVE FROM UF PUMP TO SAMPLE PORT
64. CHECK VALVE FROM SAMPLE PORT TO DRAIN
65. LOADING PRESSURE VALVE
69. AIR SEPARATION CHAMBER
71. ACID/ACETATE FILTER
72. BICARBONATE FILTER
73. FROM DIALYZER LINE FILTER
74. UF PUMP FILTER
75. DIALYSATE LINE FLOW INDICATOR
77. HEAT EXCHANGER
78. FLOW PUMP PRESSURE RELIEF VALVE
82. MIXING CHAMBER
90. DIASAFE PLUS FILTER
92. TRANSDUCER PROTECTOR

NOTES:

- 1.) ITEMS 28, 90, 92 ARE PART OF THE DIASAFE PLUS FILTER OPTION AND ARE NOT PRESENT ON ALL MACHINES.

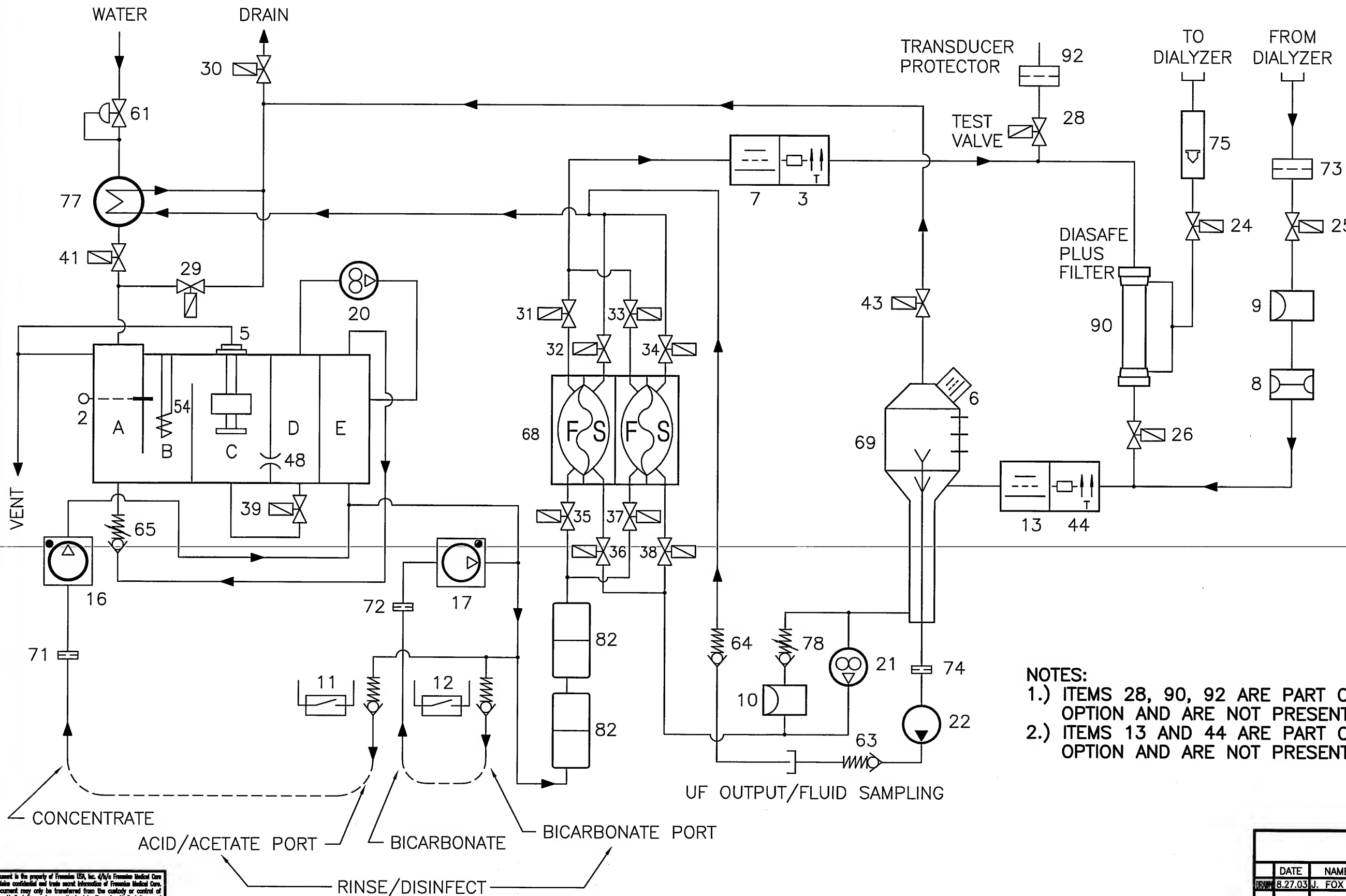
CONTROLLED

DATE		NAME		MATERIAL	
8.27.03		J. FOX		2008K HYDRAULIC FLOW DIAGRAM	
				700072	SCALE NONE
				FRESENIUS	REV. D SHEET 5 OF 6
DWG_700072 2008K HYDRAULIC FLOW DIAGRAMS					

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HYDRAULICS: FRESENIUS 2008K WITH DIASAFE PLUS FILTER AND ONLINE CLEARANCE

REV	ECO #	BY	DATE	CHK	REVISION
C	12092	RR	9.25.03	JEF	ADD 2 DIASAFE PLUS HYDRAULIC CONFIGURATIONS
D	21053	BH	7.11.07	JEF	CORRECT FLOW FOR TEST VALVE 28



COMPONENT LIST FOR FLOW DIAGRAM 2008K

2. TEMPERATURE CONTROL THERMISTOR
3. TEMPERATURE MONITOR THERMISTOR
5. FLOAT SWITCH
6. AIR SENSOR IN AIR SEPARATOR CHAMBER.
7. CONDUCTIVITY CELL
8. BLOOD LEAK DETECTOR
9. DIALYSATE PRESSURE TRANSDUCER
10. CHAMBER FULL SWITCH
11. REED SWITCH CONCENTRATE WAND
12. REED SWITCH BICARBONATE WAND
13. POST CONDUCTIVITY CELL
16. CONCENTRATE PUMP
17. BICARBONATE PUMP
20. DEAERATION PUMP
21. FLOW PUMP
22. UF PUMP
24. DIALYZER VALVE 1
25. DIALYZER VALVE 2
26. BYPASS VALVE
28. TEST VALVE
29. RECIRCULATION VALVE
30. DRAIN VALVE
31. BALANCE CHAMBER VALVE
32. BALANCE CHAMBER VALVE
33. BALANCE CHAMBER VALVE
34. BALANCE CHAMBER VALVE
35. BALANCE CHAMBER VALVE
36. BALANCE CHAMBER VALVE
37. BALANCE CHAMBER VALVE
38. BALANCE CHAMBER VALVE
39. BYPASS VALVE FOR DEAERATION ORIFICE
41. WATER INLET VALVE
43. VENT VALVE FOR AIR SEPARATION CHAMBER
44. POST TEMPERATURE THERMISTOR
48. DEAERATION ORIFICE
54. HEATER
61. WATER INLET PRESSURE REGULATOR
63. CHECK VALVE FROM UF PUMP TO SAMPLE PORT
64. CHECK VALVE FROM SAMPLE PORT TO DRAIN
65. LOADING PRESSURE VALVE
69. AIR SEPARATION CHAMBER
71. ACID/ACETATE FILTER
72. BICARBONATE FILTER
73. FROM DIALYZER LINE FILTER
74. UF PUMP FILTER
75. DIALYSATE LINE FLOW INDICATOR
77. HEAT EXCHANGER
78. FLOW PUMP PRESSURE RELIEF VALVE
82. MIXING CHAMBER
90. DIASAFE PLUS FILTER
92. TRANSDUCER PROTECTOR

NOTES:

- 1.) ITEMS 28, 90, 92 ARE PART OF THE DIASAFE PLUS FILTER OPTION AND ARE NOT PRESENT ON ALL MACHINES.
- 2.) ITEMS 13 AND 44 ARE PART OF THE ONLINE CLEARANCE OPTION AND ARE NOT PRESENT ON ALL MACHINES.

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DATE		NAME		MATERIAL	
8.27.03		J.	FOX	2008K HYDRAULIC FLOW DIAGRAM	
				SCALE NONE	
				700072	
				REV. D SHEET 6 OF 6	
				DWG_700072 2008K HYDRAULIC FLOW DIAGRAMS	